United States Department of the Interior

FISH AND WILDLIFE SERVICE
Louisiana Ecological Services
200 Dulles Drive
Lafayette, Louisiana 70506

May 19, 2020

Mike Schaub
U.S. Environmental Protection Agency
Region 6, Permitting and Water Quality Branch
1201 Elm Street
Dallas, TX 75270

Dear Mr. Schaub:

Please reference your March 31, 2020, electronic mail and attached Biological Evaluation (BE) for the Environmental Protection Agency's (EPA) proposal to revise water quality standards for Dissolved Oxygen (DO) in the eastern Lower Mississippi Alluvial Plain (eLMRAP) for 31 river subsegments located in Ascension, East Baton Rouge, Iberville, Livingston, St. Charles, St. James, St. John the Baptist, St. Tammany, and Tangipahoa Parishes, Louisiana. With a mutual agreement to extend the Service's response date, the EPA requests our review and concurrence with their determination that the proposed water quality revisions may effect, but are not likely to affect the threatened Alabama (inflated) heelsplitter (*Potamilus inflatus*) and the Atlantic sturgeon (Gulf Subspecies), (*Acipenser oxyrinchus desotoi*). We have reviewed the information provided and offer the following comments pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq).

The EPA is proposing to revise water quality standards for DO in the eLMRAP for 31 river subsegments, which are listed in the EPA's BE. According to your BE, the revised water quality standards for these subsegments would adjust DO standards from 5.0 mg/L to 2.3 mg/L from March through November. The EPA has determined that the proposed action may affect but is not likely to adversely affect the threatened Alabama (inflated) heelsplitter , which occurs in the Amite River (Subsegment 040306 (LAC) Title 33: Part IX, Water Quality Standards, Table 3) and the Atlantic sturgeon (Gulf Subspecies), which occurs in multiple subsegments within the Lake Pontchartrain Basin. Based on the information found within the BE, the Service does not concur with the determinations, because of potential adverse effects on the Alabama heelsplitter and Atlantic sturgeon due to altered conditions that would be permissible under new permitting in compliance with the revised DO standard.

Reducing the standard for DO levels to 2.3 mg/L during the critical period of March through November may disrupt metabolism in adult sturgeon as well as limit growth and survival in juveniles (Secor and Niklitschek 2001; Jenkins et al. 1995). Atlantic sturgeon have been observed to display decreased feeding metabolism at lower levels of dissolved oxygen and may have a heightened sensitivity to hypoxia compared to other fish species (Secor and Niklitschek 2001). In juvenile Atlantic sturgeons, exposure to hypoxic conditions led to reduced mean growth rates along with significant levels of mortality; especially as temperature levels increased during testing (Secor and Gunderson 1998). Low oxygen availability in waters utilized by Atlantic sturgeon has been observed to result in a reduction of activity for sturgeon in order to focus on oxygen consumption as a result of hypoxic conditions, which can decrease metabolism due to inactivity (Jenkins et al. 1995).

Altering the DO standards from 5.0 mg/L to 2.3mg/L during the critical period of March through November may also compromise metabolic processes of adult mussels and contribute to restricted growth and survival for juveniles (Gobler et al. 2014; Sokolova 2013). Stress resulting from introduced hypoxia can decrease an organism's aerobic scope, yielding metabolic depression (Pörtner 2008, 2010) and/or the initiation of anaerobic metabolism, which can result in slowed growth and even mortality in cases of sustained negative aerobic scope (Sokolova 2013). Gobler et al. (2014) found that larvae experienced delayed metamorphosis suggesting that a lower metabolic state induced by hypoxia does not afford larvae the aerobic scope to initiate metamorphosis. In early life stage clams, hypoxic waters were also observed to increase rates of mortality, with additive effects, such as decreased growth, when combined with other naturally occurring factors (Gobler et al. 2014).

These negative consequences are indirect effects, defined as those that are caused by the National Pollutant Discharge Elimination System (NPDES) permits, Clean Water Act 303 (d) Assessments, Total Maximum Daily Loads (TMDL's), and water quality management plans that a lower DO water quality standard will allow, pursuant to the provisions of the Clean Water Act (EPA 2020). As mentioned within the BE, DO within the freshwater and estuarine subsegments already reach very low levels throughout most of the year. However, these naturally occurring low levels of DO for specific times of the day and/or year does not justify lowering the water quality standard from 5.0 mg/L to 2.3 mg/L during the identified critical period, March to November.

It is the opinion of the Service that a DO standard of 2.3mg/L is too low to support Louisiana's federally listed species in the eLMRAP and will have negative effects on the federally listed Atlantic Sturgeon and Alabama heelsplitter. There is currently insufficient data provided within the revised 2020 BE to conclude a lack of adverse effects for these federally listed species. Lowering the DO level by more than half of the current water quality standard (5.0 mg/L) for 31 freshwater and estuarine stream subsegments, many of which already face impairment from natural processes and anthropogenic impact, creates opportunity for occurrences of more severe hypoxic conditions brought about by project permitting that would utilize the revised DO standard. An absence of complete datasets coinciding with obscure statistical analysis for the eLMRAP does not provide an accurate assessment of the ecoregion that would support the position of altering DO water quality standards.

The study upon which the EPA's BE is based, the Barataria-Terrebonne Use-Attainability Analysis (BTUAA) does not include any data from the portion of the LMRAP east of the Mississippi River in the study. The Louisiana Department of Environmental Quality (LDEQ) conducted a Use Attainability Analysis (UAA) for the eLMRAP in 2013 and used descriptive statistics to compare the two regions. "The ecoregion approach in the BTUAA served as the basis for the DO criterion developed for the eastern LMRAP" (pg. 8). The LDEQ's UAA uses just 13 reference sites, only six of which are located in the eLMRAP. The sites are not representative of the ecoregion or natural conditions overall, as it states on page 10 of the BE, all reference sites in both ecoregions were selected qualitatively, and the methods and data behind that selection process were not provided. Moreover, the continuous monitoring data from the reference sites was truncated to exclude all data not collected between 6am and 12pm. This technique was used because of an apparent Memorandum of Agreement (MOA) between the EPA and LDEQ establishing DO monitoring protocols. All reference sites in the western and eastern LMRAP were considered "least-impacted by anthropogenic influences relative to the characteristics of the ecoregion based on a qualitative assessment." What that qualitative assessment consisted of is not explained, and the methods and underlying data used to make those determinations are not provided in the BE. The Service assumes this qualitative assessment is in reference to the LDEQ site information form in Section 2.4.3, page 11. Selecting data only from the "critical period" of the day, from 6am to 12pm when DO concentrations are naturally the lowest, skews the data analysis portion of the BE towards low DO conditions. Restricting data analyses to the critical period does not reflect natural ambient conditions throughout the day. The action agency should provide justification for excluding all data collected outside the critical period from 6am to 12pm beyond referencing the 2008 MOA between LDEQ and the EPA. The reasoning for this should be clearly explained and supported by the best available scientific evidence.

The Service acknowledges that high temperatures and low flow in Louisiana's eLMRAP region makes it difficult to attain 5.0 mg/L DO throughout the year. We appreciate the opportunity for continued coordination with the EPA regarding potential effects to federally listed species. Please contact Joe Hodges (337-291-3109), Fish and Wildlife Biologist at Louisiana Ecological Services Field Office, if you have any questions or concerns.

Sincerely,

Joseph A. Ranson
Field Supervisor
Louisiana Ecological Services

cc: LDWF, Wildlife Diversity Program, Baton Rouge, LA

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